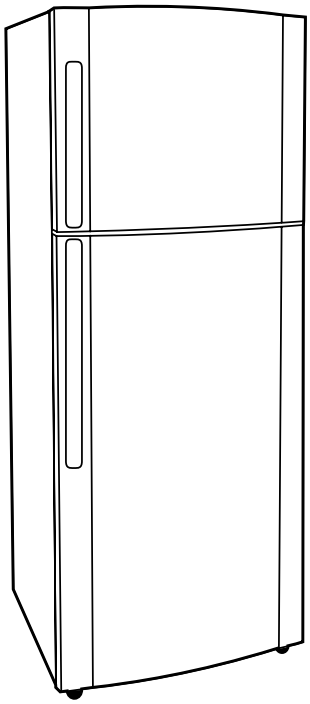
SHARP SERVICE MANUAL

S3404SE41APLT



REFRIGERATOR-FREEZER

MODELS

SJ-D30M-BL/GY/SLG
SJ-D33M-BL/GY/SLG

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

DESTINATION .....T

Refrigerant; HFC-134a
Refer to "HFC-134a COOLING UNIT" Service Manual for handling this refrigerant.

TABLE OF CONTENTS

page
CAUTIONS AND INFORMATIONS 2
SPECIFICATIONS 3
DESIGNATION OF VARIOUS PARTS 4
DIMENSIONS 5
LIST OF ELECTRICAL PARTS 7
WIRING DIAGRAM 8
FUNCTIONS 10
ASSEMBLING PROCEDURES OF MAIN PARTS AND CAUTIONS 13
COOLING UNIT 19
REPLACEMENT PARTS LIST 21

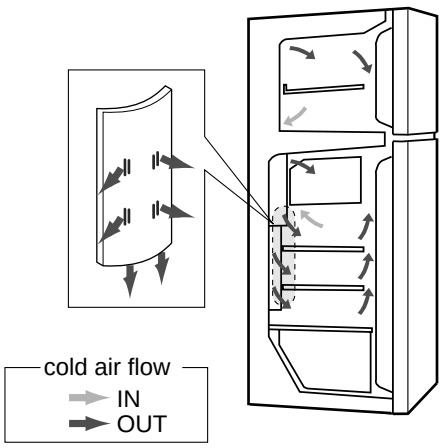
SHARP CORPORATION

CAUTIONS AND INFORMATIONS

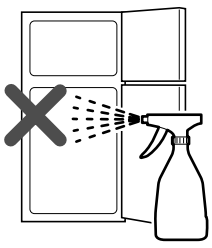
In case of following troubles, the cause is not related with the failure of refrigerator.
Please mention the correct way to the customer for the use of refrigerator when the repairing.

1. Some foods freezed in the refrigerator compartment.

Do not place food directly in front of cold air outlet.
This may lead to the food freezing.



2. Some plastic parts were cracked or splitted.



Some household cleaning chemicals may affect the internal food liner and plastic parts resulting in splitting or cracks occurring.
When cleaning all plastic parts inside this refrigerator, only use diluted dishwashing liquid(soapy water). Make sure that all plastic parts are thoroughly rinsed with water after cleaning.

3. IT IS NORMAL for the refrigerator to produce the following sounds.

Cracking or crunching sound;
Sound produced by expansion and contraction of inner walls and internal parts during cooling.
Squeaking sound;
Sound produced by expansion and contraction of internal parts.
Sound of flowing fluid (gurgling sound, fizzing sound);
Sound of refrigerant flowing in pipes (sound may become louder from time to time).

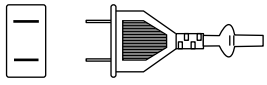
SPECIFICATIONS

Items		SJ-D30M	SJ-D33M
Type		2-Door	2-Door
Outer dimensions (Including spacer)	Height	1580mm(62.2")	1700mm(66.9")
	Width	650mm(25.6")	650mm(25.6")
	Depth	635mm(25.0")	635mm(25.0")
Thai standard volume<TIS>		360 liter (12.7cu.ft) F: 109 liter (3.8 cu.ft) R: 251 liter(8.9 cu.ft)	400 liter (14.1 cu.ft) F: 109 liter (3.8 cu.ft) R: 291 liter(10.3 cu.ft)
Rated storage volume <ISO> (Rated volume)		288 liter (10.2cu.ft) F: 82liter (2.9 cu.ft) R: 206 liter(7.3 cu.ft)	321 liter (11.3 cu.ft) F: 82 liter (2.9 cu.ft) R: 239 liter(8.4 cu.ft)
Gross volume <ISO>		303 liter (10.7cu.ft) F: 87liter (3.1 cu.ft) R: 216 liter(7.6 cu.ft)	336 liter (11.9 cu.ft) F: 87 liter (3.1 cu.ft) R: 249 liter(8.8 cu.ft)
Defrosting	System	Heater system	
	Start	Automatic	
	Finish	Automatic	
Temperature control		Automatic (Adjustable)	
No-frost freezer		Yes	
Interior lamp		1	
Caster		2	
Evaporating pan		1	
Refrigerator Compartment	Refrigerator tray	2	
	Vegetable tray	1	
	Vegetable case	1	
	V parting plate	1	
	R door pocket	1	
	Egg tray	1	
	Bottle pocket	1	
	Bottle stopper	1	
	Door pocket	2	
	Fresh case	1	
	Bottle tray	1	
Freezer Compartment	Freezer tray	1	
	Ice cube maker	Twin ice cube maker	
	Ice storage box	1	
	Door pocket	2	
Deodorizing unit		2 (Honeycomb type)	

RATING

Items		SJ-D30M	SJ-D33M
Rated voltage	(V~)	220-240	
Rated frequency	(Hz)	50	
Climate class		T	
Rated current	(A)	1.1-1.2	
Rated input	(W)	145-154	
Rated input of heating systems	(W)	128-152	
Refrigerant (Charging quantity) [Non-flammable]		HFC-134a(105g)	
Insulation blowing gas [Flammable]		Cyclo pentane (HC)	
Net Weight	(kg)	60	62

PLUG TYPE

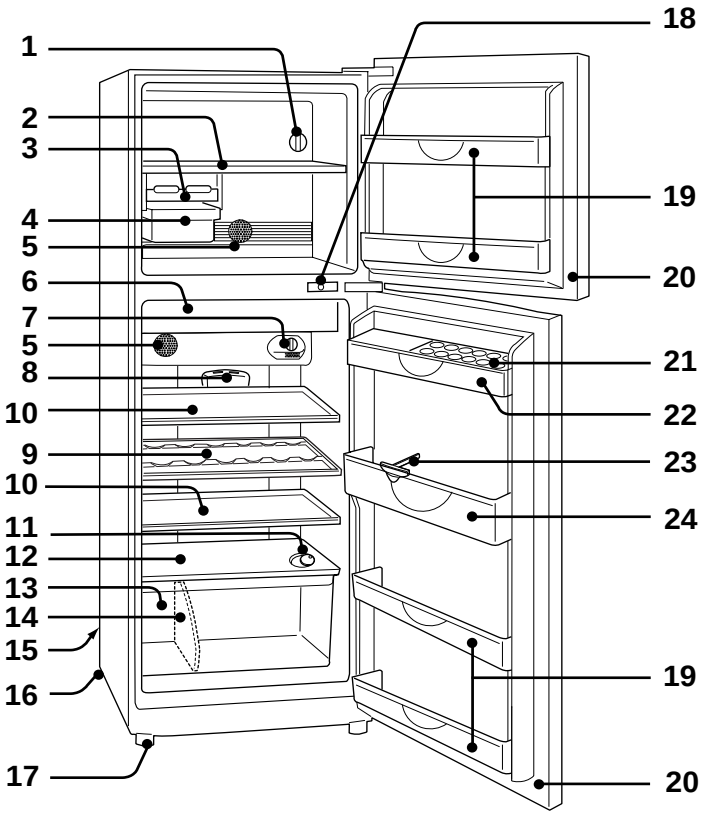
Plug cord	2 pin	Plug type	A-1 
Destination mark	T		

COLOR

Items	-BL	-GY	-SLG
Outside color	Blue	Gray	Silver
Inside color	White		

DESIGNATION OF VARIOUS PARTS

The names in parenthesis are the denominations used in the REPLACEMENT PARTS LIST.



1. Freezer temp. control knob
2. Freezer shelf(Freezer tray)
3. Ice cube maker
4. Ice cube box(Ice storage box)
5. Deodorizing unit
6. Fresh case
7. Refrigerator temp. control knob
8. Light(Lamp)
9. Bottle shelf(Bottle tray)
10. Refrigerator shelf(Refrigerator tray)
11. Lever
12. Shelf(Vegetable tray)
13. Vegetable crisper(Vegetable case)
14. Divider(V parting plate)
15. Evaporating pan
16. Casters
17. Adjustable foot(Adjustable leg ass'y)
18. Light switch
19. Utility pocket(Door pocket)
20. Magnetic door seal(Door packing)
21. Egg holder(Egg tray)
22. Egg pocket(R door pocket)
23. Bottle guard(Bottle stopper)
24. Bottle pocket

Figure D-1. External Description

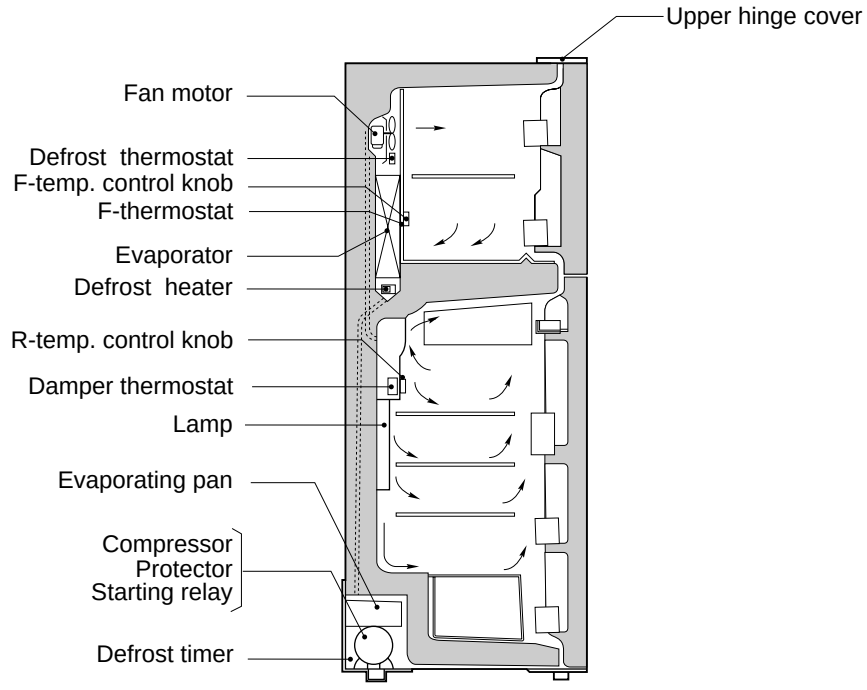
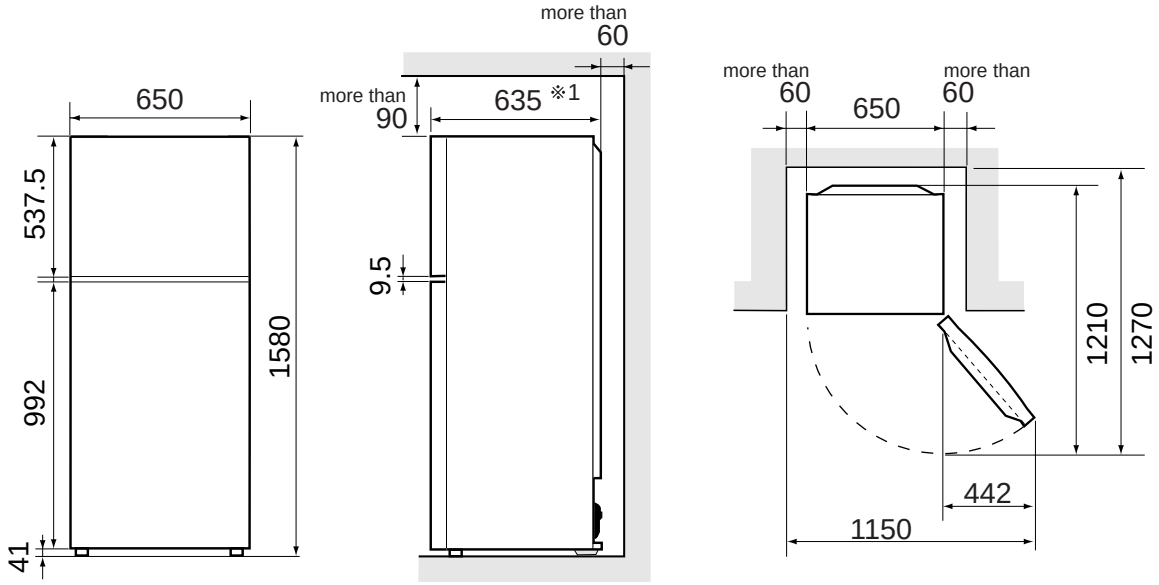


Figure D-2. Constructions

DIMENSIONS

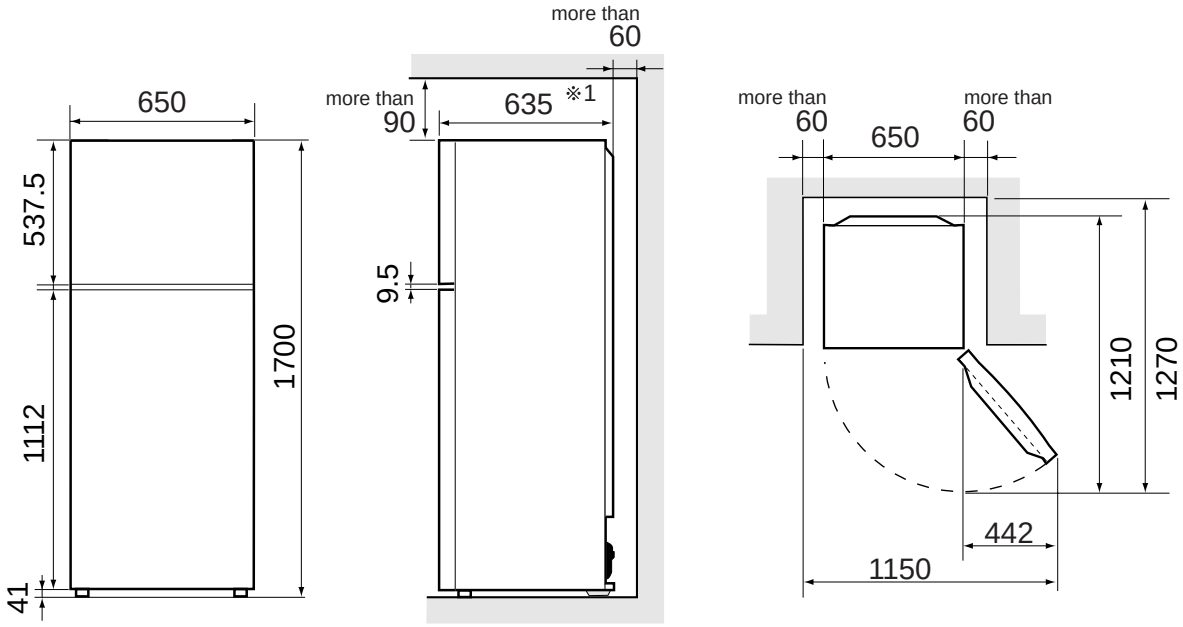
OUTER DIMENSIONS AND CLEARANCE



※1: Include the badge
Not include the handle

(Unit : mm)

Fig. E-1(SJ-D30M)



※1: Include the badge
Not include the handle

(Unit : mm)

Fig. E-2(SJ-D33M)

INNER DIMENSIONS

The dimensions between shelves can be changed by setting the shelves on the other rails.

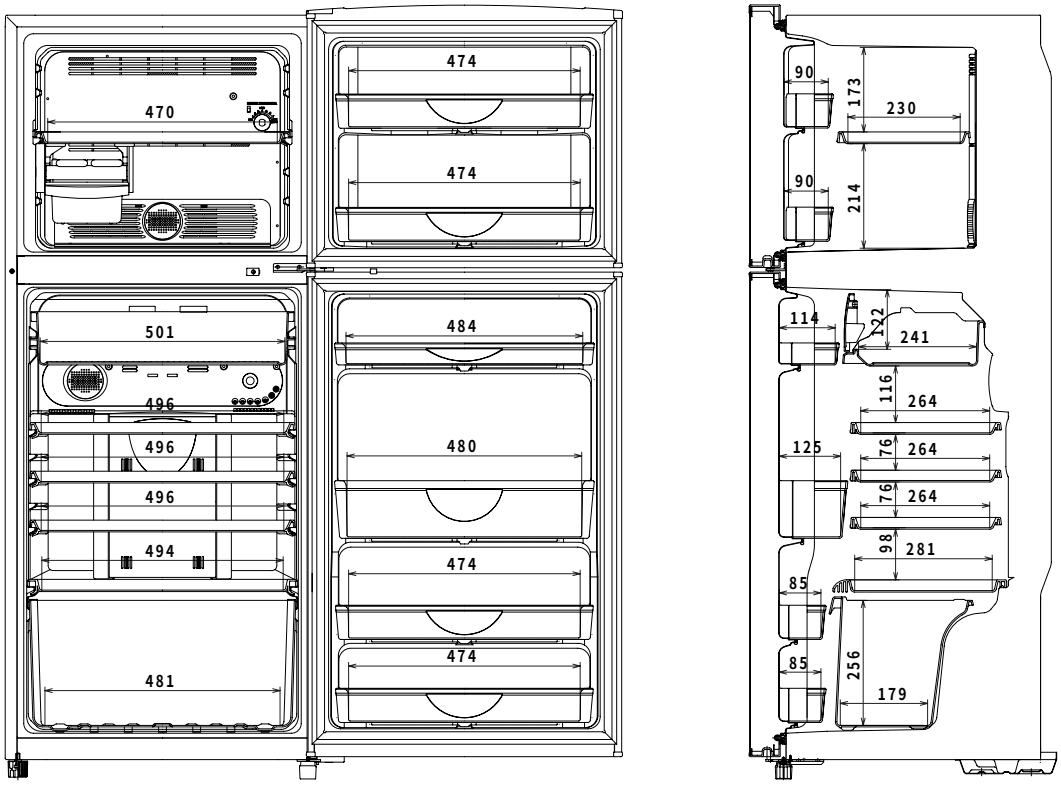


Fig. E-3(SJ-D30M)

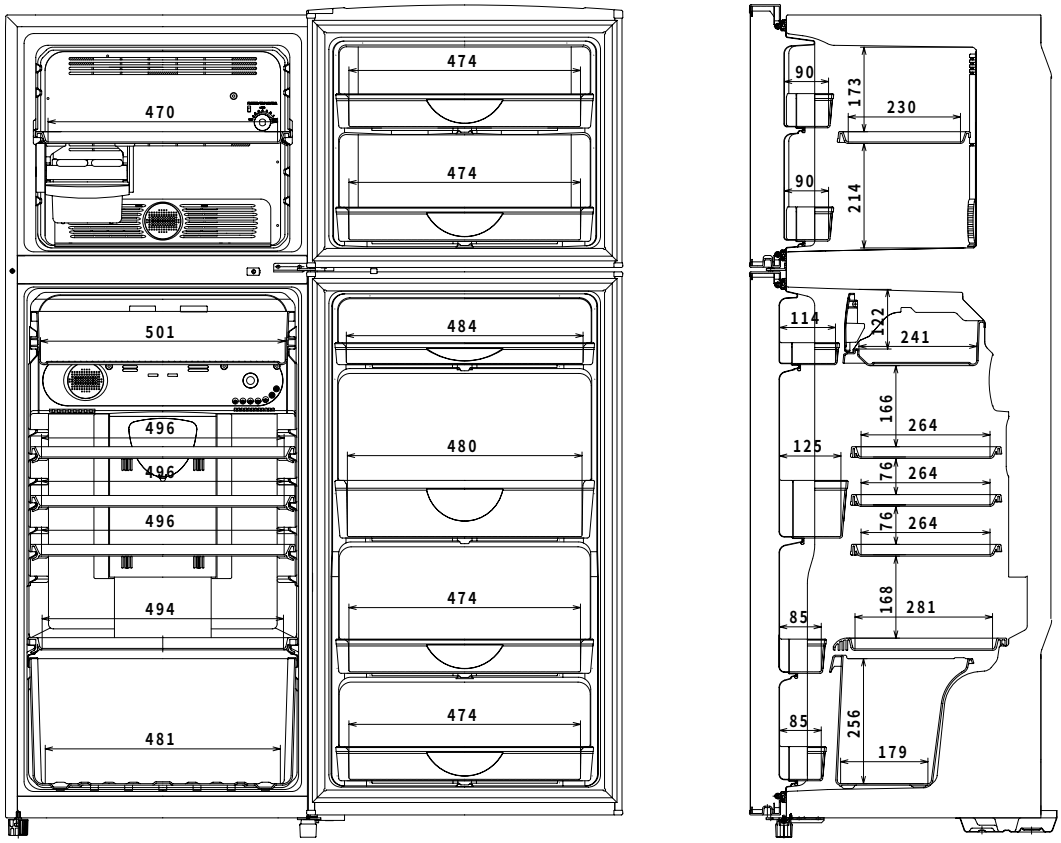
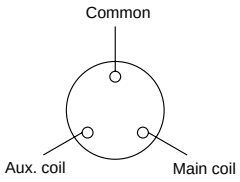


Fig. E-4(SJ-D33M)

LIST OF ELECTRICAL PARTS

ITEMS	TYPE NAME	RATING	SPECIFICATIONS
Thermostat	MM1-9010	125V 6A 250V 3A	(At normal notch) ON/OFF : -19 / -24˚C
Defrost thermostat	S101	250V 8A	Open/Close : 8 / 1˚C
Thermo. fuse	SF70E	250V 10A	Working temp. : 70˚C
Fan motor	3R00121A	220-240V 50/60Hz	Working with ø100 fan
Defrost heater	MM6-4264	220-240V 378Ω	140W at 230V
Door switch	SDKNA20101	250V 0.25A 125V 0.5A	3 terminals push-button type
Damper thermostat	MM1-6173	—	Open/Close : 4.5 / 0˚C
Defrost timer	ND1004M2	220-240V 50/60Hz	Integration type Cycle time : 10h44m/8h57m(50/60Hz) Delay time : 4m20s/3m37s(50/60Hz)
Lamp socket	—	250V 1A	E-14(Hard plastic body type)
Lamp	—	240V 10W	E-14
Compressor	FL1568SY	220-240V/50Hz	Cooling capacity : 188W (50Hz) Main coil : 13.3Ω Aux. coil : 25.6Ω (at 25˚C) 
Starting relay	PET0SAT	—	22 Ω 300V
Overload relay(Protector)	1.8C36A1	—	Open/ Close : 130/60˚C

WIRING DIAGRAM

Be sure to replace the electrical parts with specified ones for maintaining the safety and performance of the set.

GY : GRAY
BR : BROWN (live)
OR : ORANGE
Y : YELLOW
R : RED
P : PINK
BL : BLUE(neutral)
BK : BLACK
SB : SKY-BLUE
G-Y : GREEN-YELLOW (earth)
W : WHITE

◉ CONNECTED IN TERMINAL BOX
□ CONNECTOR

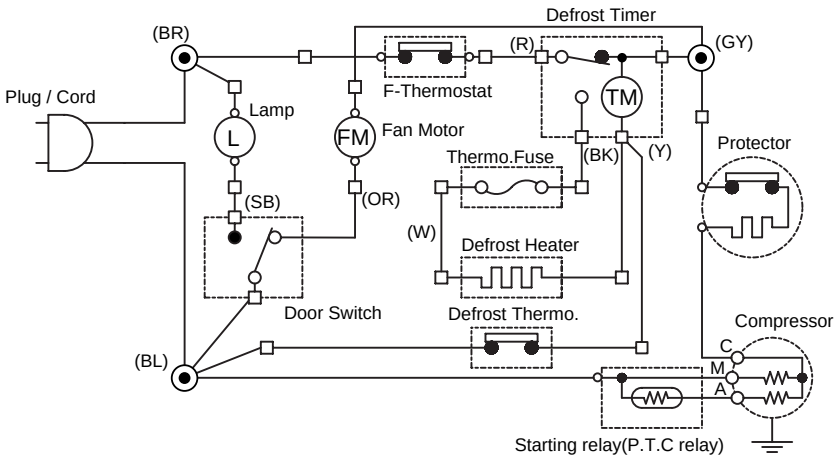
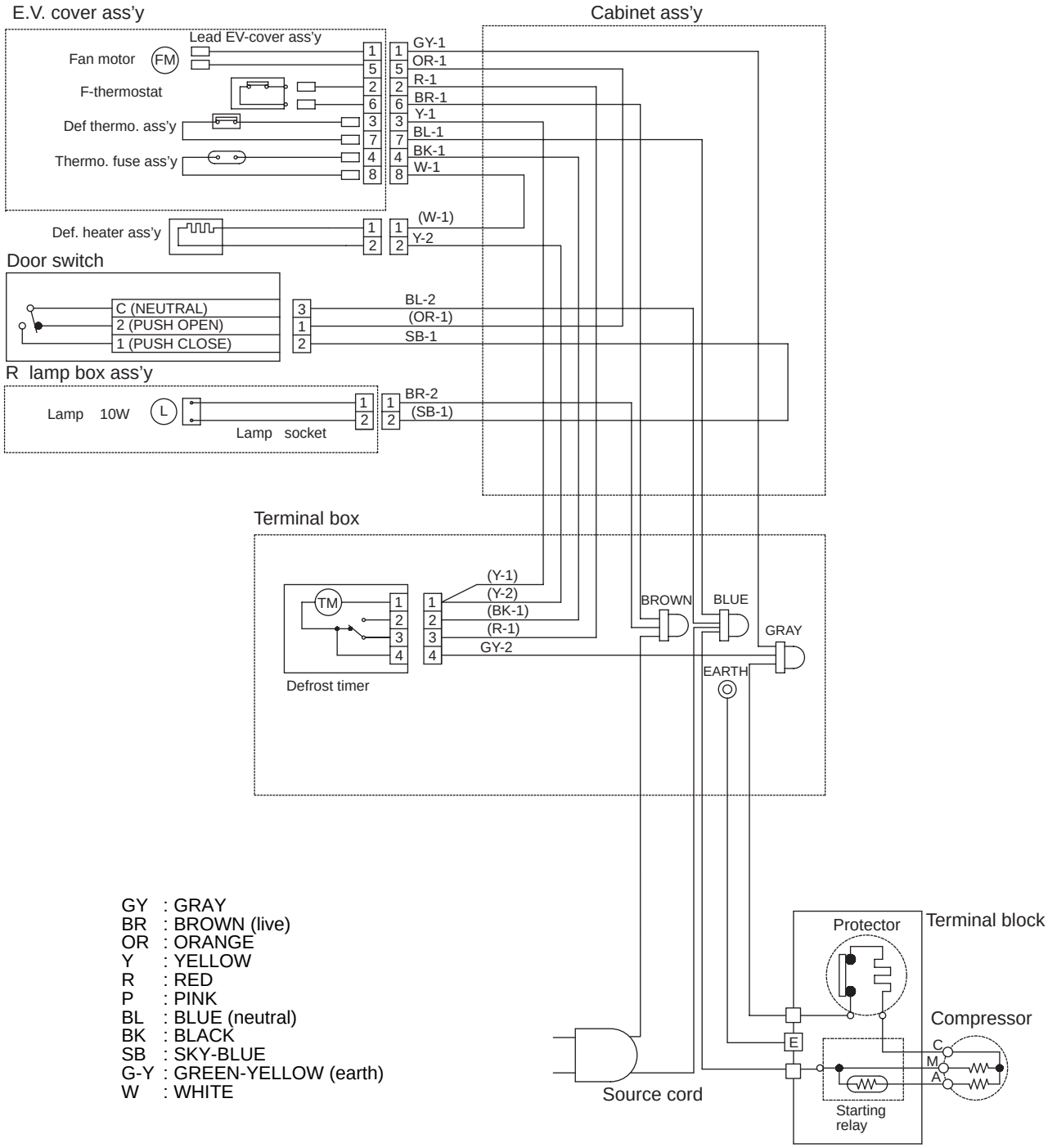


Figure W-1. Wiring Diagram



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W : WHITE

Figure W-2. Electric Accessories Layout

FUNCTIONS

1. ADJUSTABLE TEMPERATURE CONTROL

(1) Temperature control of freezer

- Thermostat (senses freezer temperature) operates on ON/OFF switchover to control the compressor and cool air circulating fan , and allows the freezer temperature to keep at a suitable temperature.
- However adjust the freezer temp. control knob as follows depending upon the storing condition of foods.

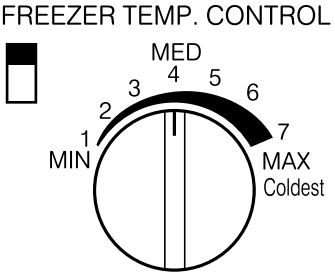


Figure F-1.

KNOB SETTING	PURPOSE
MAX(Coldest)	● For making ice rapidly or fast freezing.
⬆	● When restocking with fresh food.
MED	● For normal freezing.
⬇	● For storing frozen food for a short period (up to one month).
MIN	● When frozen food or ice cream is not stored.

(2) Temperature control of refrigerator

- Damper-thermostat senses temperature of the refrigerator and changes the opening angle of the damper automatically.
  However, as the Damper-thermostat has no function to switch on or off the compressor and fan motor, the freezer temperature control causes temperature in the refrigerator to vary to some extent.
- However, adjust the refrigerator temp. control knob as follows depending upon the cooling condition.

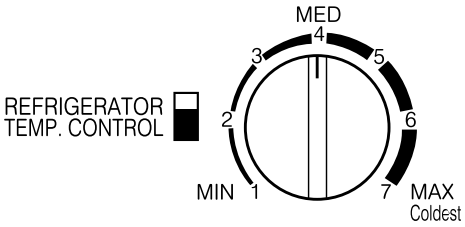


Figure F-2.

KNOB SETTING	PURPOSE
MAX(Coldest)	● For keeping freshness of food longer.
⬆	● When the refrigerator does not provide sufficient cooling.
MED	● For normal operation.
⬇	● When the refrigerator provides excessive cooling.
MIN	

NOTE:
- The refrigerator temperature is affected also by the freezer temperature. If the freezer temp. control knob is set at the position "MAX", the temperature tends to be lower than the following values, and if set at near the position "MIN", temperature tends to be higher.
- If the refrigerator is operated for a long time with the freezer temperature control sets the "MAX" position, foods stored in the refrigerator compartment may also freeze.
- When refrigerator temperature control sets to the "MAX", some foods stored may freeze.
  In this case adjust control set back to the "MED" position.
- When refrigerator temperature control sets to the "MAX", some foods stored in Fresh case may also become frozen.

(3) Reference value of temperature

SETTING OF FREEZER TEMP. CONTROL KNOB	MAX (Coldest)	MED	MIN
Freezer temperature	Approx. -21˚C	Approx. -18˚C	Approx. -15˚C

SETTING OF REFRIGERATOR TEMP. CONTROL KNOB	MAX (Coldest)	MED	MIN
Refrigerator temperature	Approx. 0˚C	Approx. 3˚C	Approx. 6˚C
Fresh case temperature	Approx. -3˚C	Approx. 1˚C	Approx. 4˚C

The values shown above refer to the case where the freezer temp. control knob is set at "MED".

The values shown above refer to the measurement carried out center area and 1/3 of overall height from the bottom at each of the refrigerator and the freezer after machine has been operated at an ambient temperature of 30˚C with no food stored and the door closed until the temperature is stabilized.
The values vary depending upon frequency of opening and closing the door, ambient temperature, amount of stored foods and manner of storing foods.

2. DEFROSTING

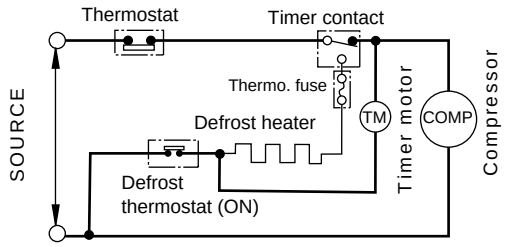
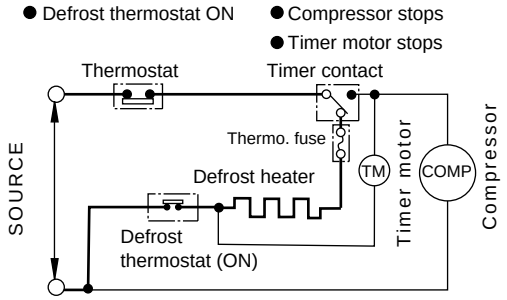
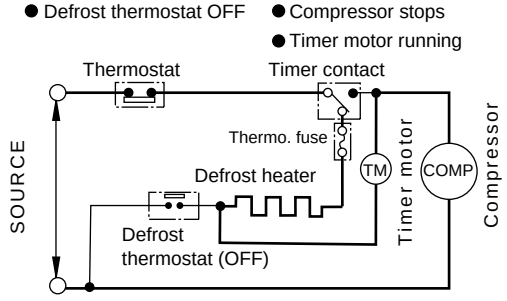
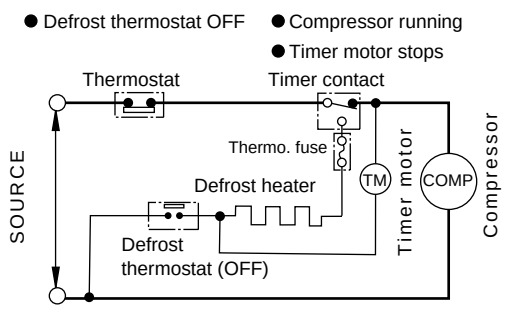
(1) No defrosting operation is necessary

No defrosting operation is necessary.
As this machine is so designed that a built-in evaporator cools air and a fan circulates cooled air, neither the freezer nor the refrigerator is frosted, though the evaporator is frosted.
The frosted evaporator is defrosted automatically due to the function of defrosting timer and heater, requiring no defrosting operation.

(2) Where is melted frost brought

1. Melted frost is brought into the evaporating pan at the back of the set and is evaporated here by the heat of compressor.
2. Be sure to use Evaporating pan as inserted so as to be level with the outer case.

(3) The following circuit diagrams in the table show automatic defrosting function of the refrigerator with timer and defrost thermostat.

Operation	Electric diagram	Description
1. Cooling (Normal)	● Defrost thermostat ON ● Compressor running ● Timer motor running  **Figure F-3.**	The integration timer integrates running time of the compressor. When it reaches cycle time of defrost timer, the timer contact is changed to start defrosting.
2. Defrosting (Time 20 to 30 min.)	● Defrost thermostat ON ● Compressor stops ● Timer motor stops  **Figure F-4 .**	● The timer contact is changed to start defrosting, the timer motor stops, and power is supplied to the defrost heater. ● It takes about 20 to 30 min. to defrost. When little frosted, the defrosting takes little time. When much frosted, the defrosting takes much time.
3. Drain (Time approx. 5 min.)	● Defrost thermostat OFF ● Compressor stops ● Timer motor running  **Figure F-5.**	When the defrost thermostat becomes OFF, the timer motor starts running. During the operation time (delay time of defrost time) defrosted water is drained outside the refrigerator.
4. Restart (Time approx. 5 min.)	● Defrost thermostat OFF ● Compressor running ● Timer motor stops  **Figure F-6.**	● Timer contact is changed to cooling operation and the compressor starts running and the timer motor stops. ● Defrost thermostat contact becomes ON when it's cooled. And the timer motor starts running. (Figure F-3.)

(4) As a reference to determine the causes of trouble, malfunction and phenomena are described below. Refer to the following when repairing.

1. Disconnection of defrost heater
As off-cycle defrosting is performed, the defrosting time is extremely prolonged. Each time defrosting is started, the freezer temperature rises and a portion of ice and stored foods are melted.

2. Melted thermo. fuse or opened-circuit due to the defect of defrost thermostat.
When the above mentioned trouble occurs in cooling operation, the timer motor does not run, defrosting will not take place, and consequently freezing is caused. In the above mentioned condition, when the timer shaft is turned by hand to defrost, the timer motor runs during the operation time. However, the motor stops from the time when the contact is changed, and freezing causes.

NOTE:
- As the thermo. fuse assembly is intended to prevent dangers, do not use it under shorted condition even for a short period.

3. DEW PREVENTION

The hot pipe, namely D.P.-condenser, is arranged around the flange part of cabinet and the C-partition plate, preventing dew from being generated on the cabinet.

NOTE:
- D.P.-condenser pipe may be felt hot if touched by hand while the compressor is in operation.
- If you are asked about this, please explain that the hot pipe serve to prevent the dew generation.

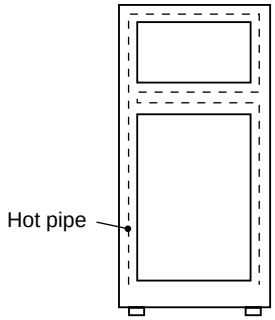


Figure F-7

4. INSPECTION OF INITIAL STARTING

(1) Inspection of cooling unit

1. Set the temperature control knob to "MAX" and check that the compressor starts to operate.
2. Depress the door switch to run the fan and check that cool air is blown out of the cold air outlet of the freezer and the refrigerator.
3. When the compressor does not work, check that the timer is not set to "defrost" position.
4 It takes about an hour and a half or two hours to put food in the refrigerator after starting operation.

NOTE:
- After return the temperature control knob to "MED" position.
- When the refrigerator is operated initially after installed, the compressor may vibrate excessively for 1 to 2 min. However, vibration becomes normal if it is continuously operated.

(2) Inspection of defrost device

Operate the refrigerator for 20 to 30 min. and then check the defrost device in the following procedures :
Allow 5 min. to restart the compressor since immediate starting after stopping will cause unsmooth operation.

1. Turn the timer shaft clockwise with a screw driver.
   At this time, make certains the timer clinks and the compressor stops.
2. After more than 5 min., turn the shaft further to operate.
   Make certain cooling operation is started again.

ASSEMBLING PROCEDURES OF MAIN PARTS AND CAUTIONS

CAUTION: DISCONNECT THE UNIT FROM THE POWER SUPPLY BEFORE ANY REPAIRING.

1. R-AIR GUIDER ASSEMBLY

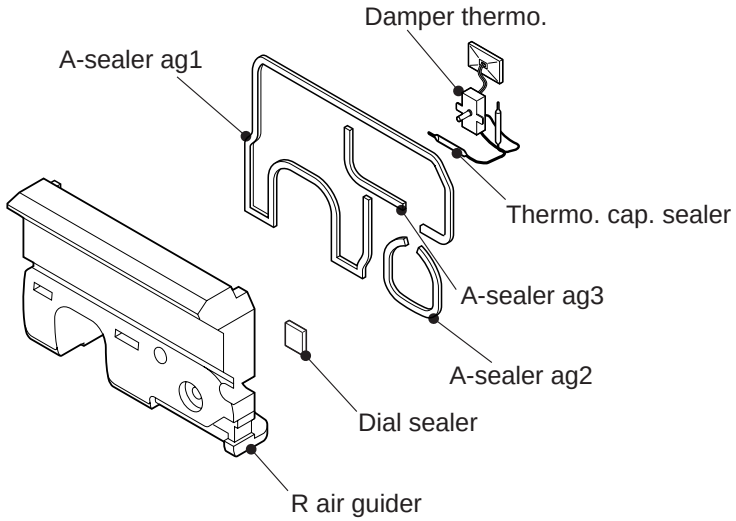
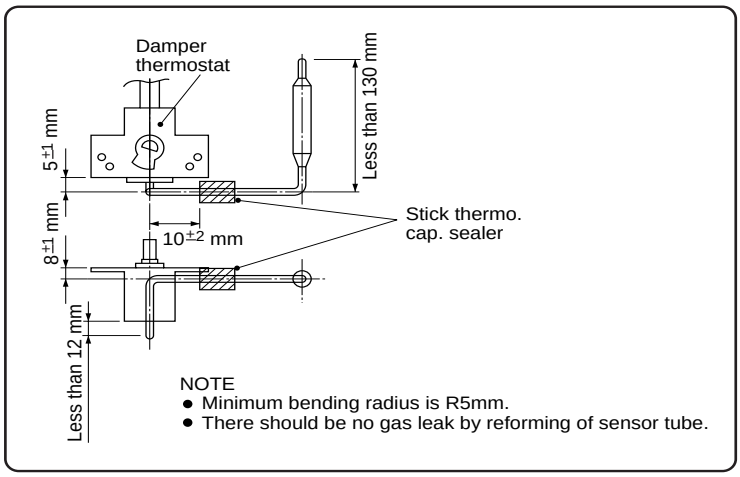


Figure A-1

(1) Forming sensor of Damper thermo.



After forming, fix it to the refrigerator.

Figure A-2

(2) Sticking sealers to R air guider.

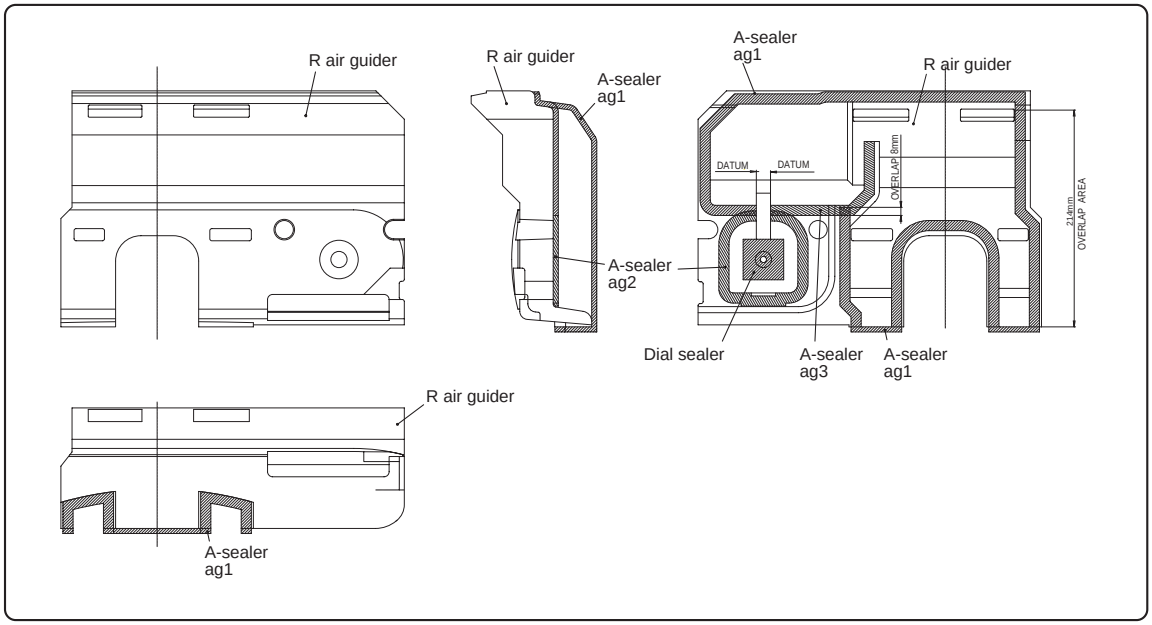


Figure A-3

2. E.V COVER ASSEMBLY

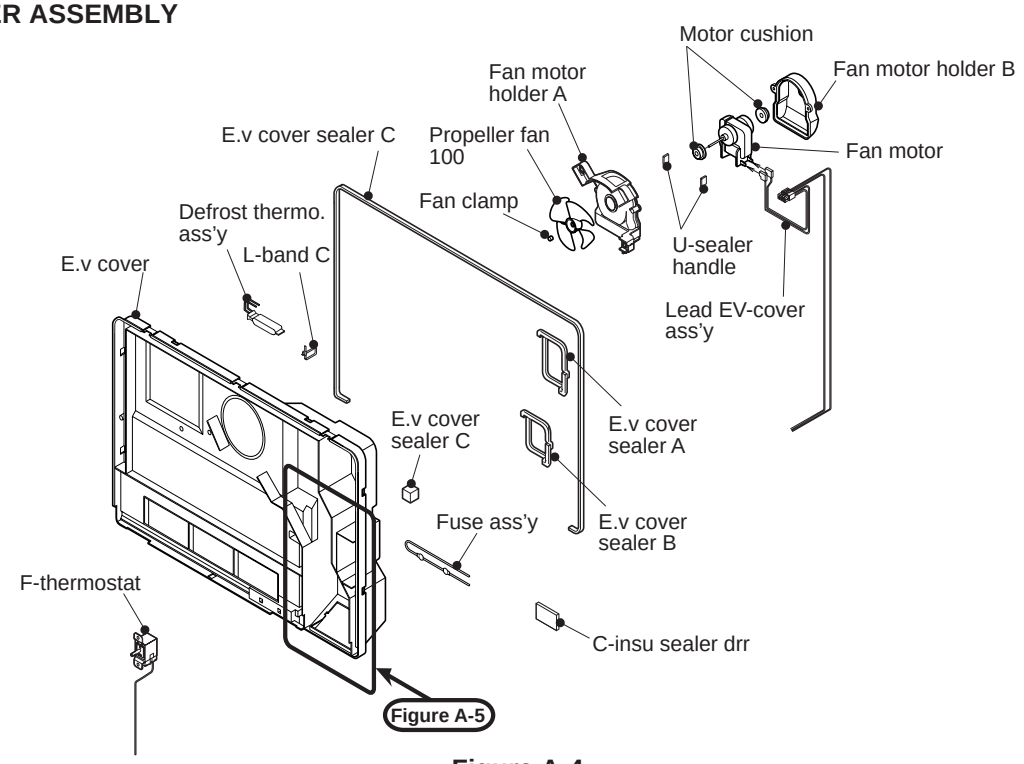


Figure A-4

2-1. Caution when removing E.V cover assembly

Be careful for removed Tapping screw not to fall to the lower duct hole.
If Tapping screw falls, Damper thermo. in the refrigerater compartment will be locked, and it will become the cause of failure.

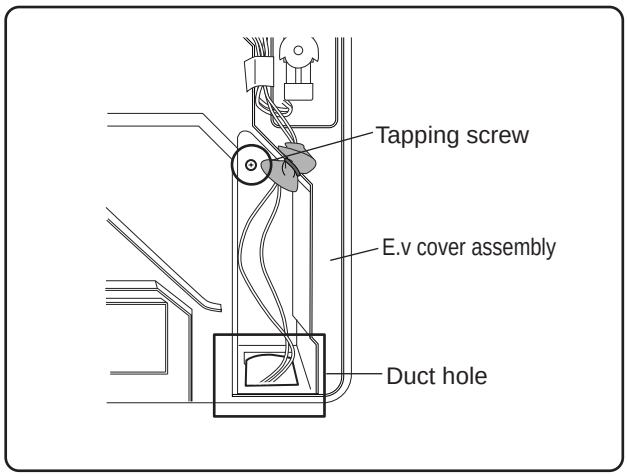


Figure A-5

2-2. Assembling procedures

(1) Sticking of Sealers to E.V cover

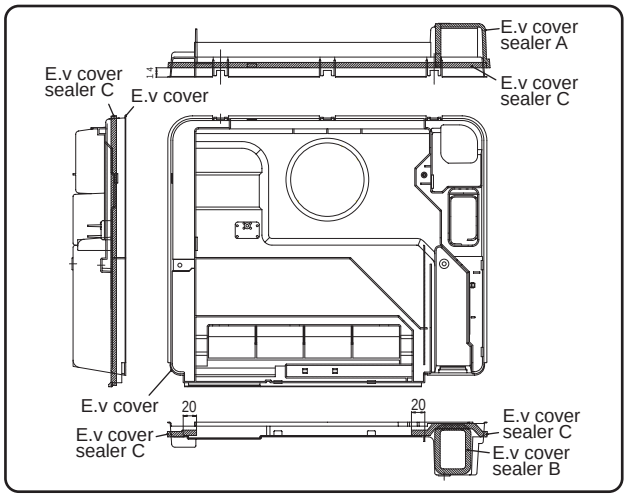


Figure A-6

(2) Fixing of Fan motor and Fan

(2)-1 Stick U-sealer handle to Fan motor holder A.

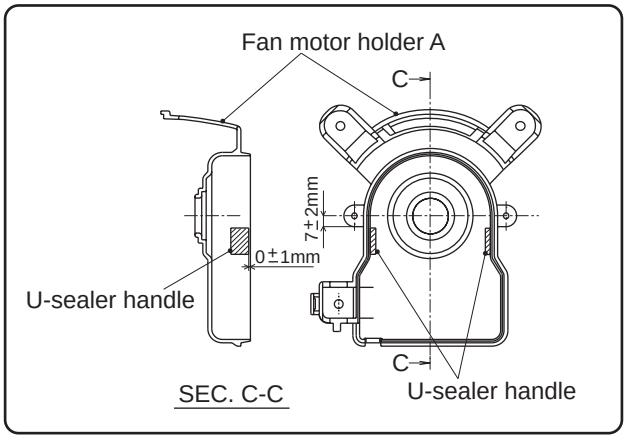


Figure A-7

(2)-2 Insert the terminals of Lead EV-cover ass'y to Fan motor.

(2)-3 Fix two Motor cushions to Fan motor, and set it at Fan motor holder A and B.
Then fix with Tapping screw.

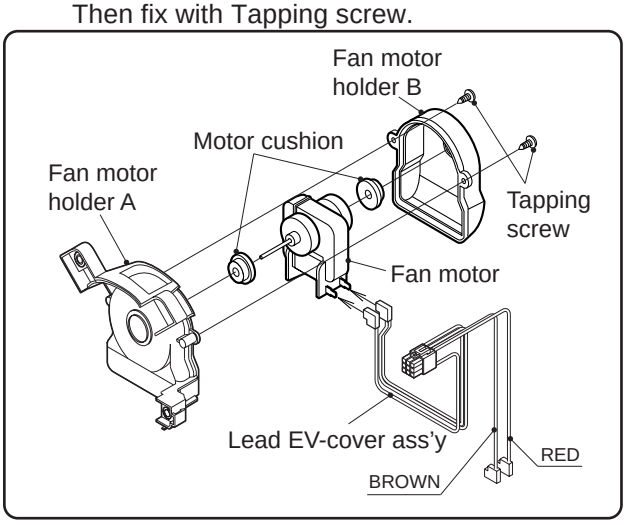


Figure A-8

(2)-4 Set Fan clamp to Propeller fan 100 and insert it to the shaft of Fan motor.

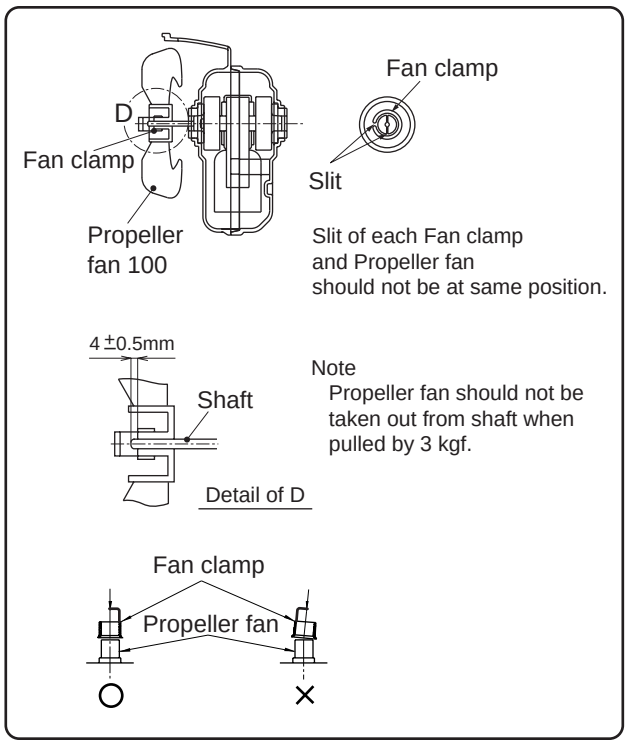


Figure A-9

(3) Setting of Fan motor ass'y , Defrost thermo. ass'y and Fuse ass'y.

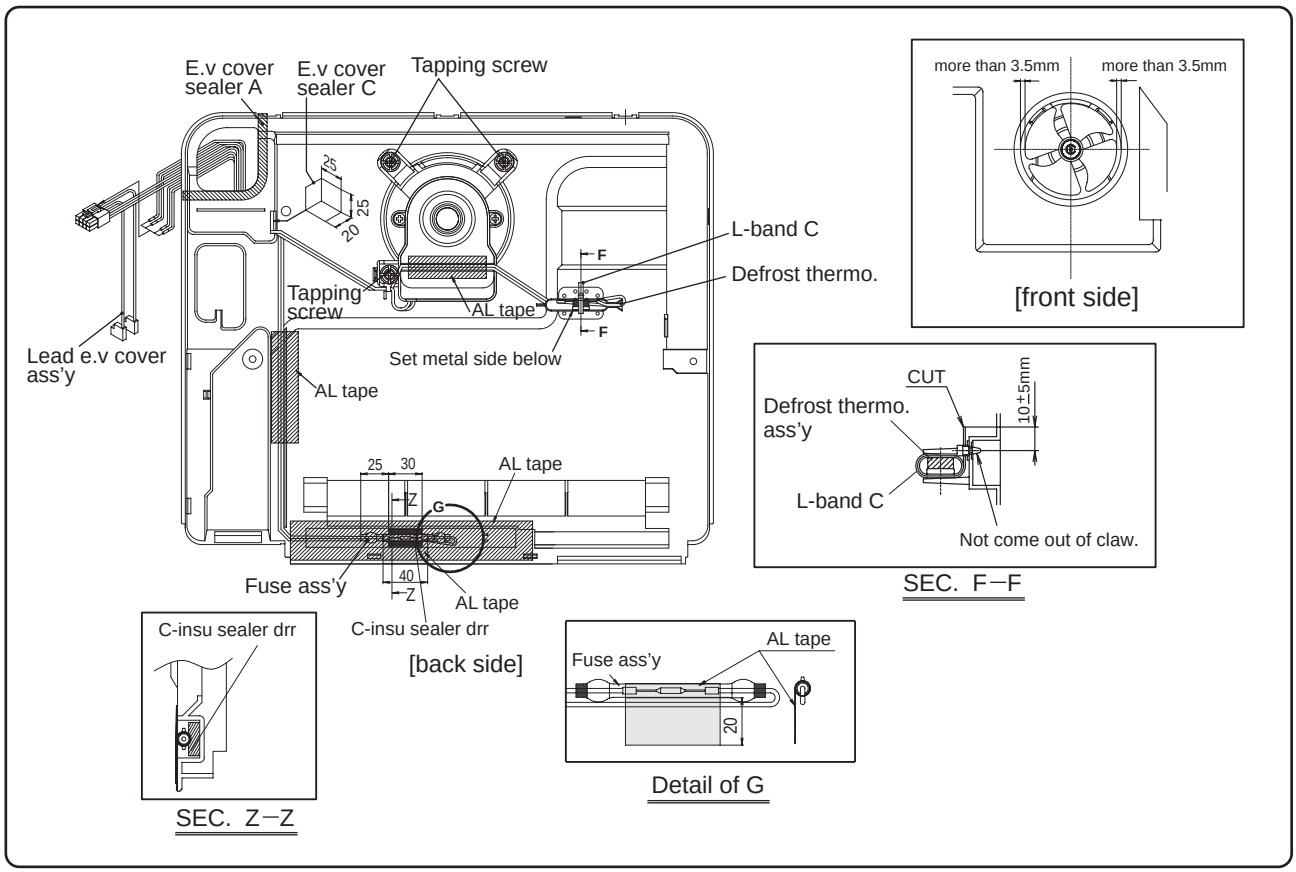


Figure A-10

(4) Inserting of pins

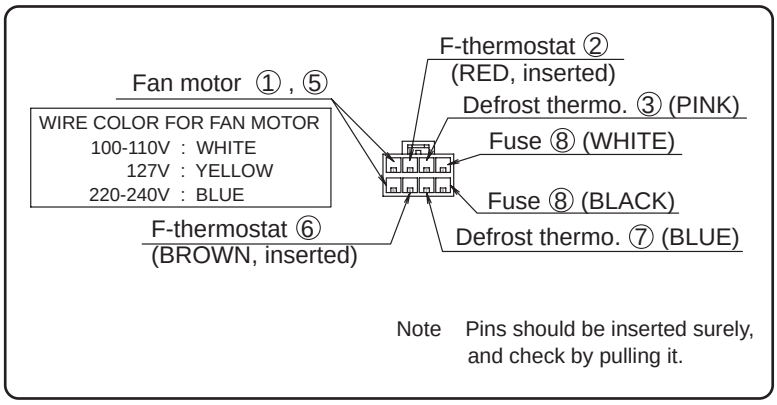


Figure A-11

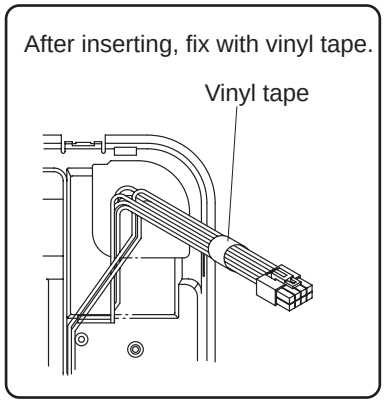


Figure A-12

(5) Setting of F-thermostat

(5)-1 Form capillary tube of F-thermostat.
(5)-2 Insert terminal of Lead EV-cover ass'y.

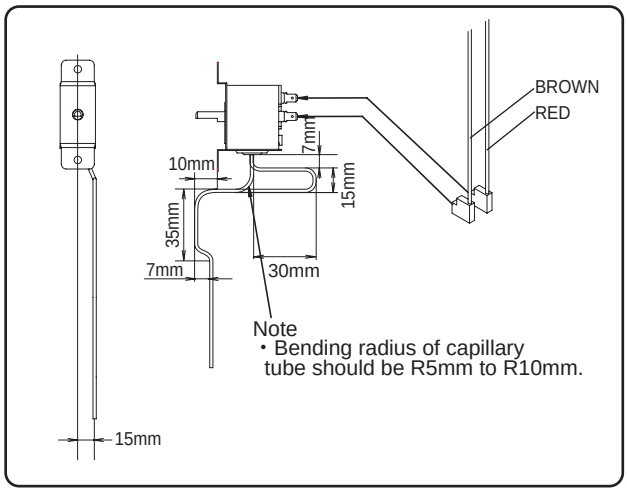


Figure A-13

(5)-3 Set to E.V cover.

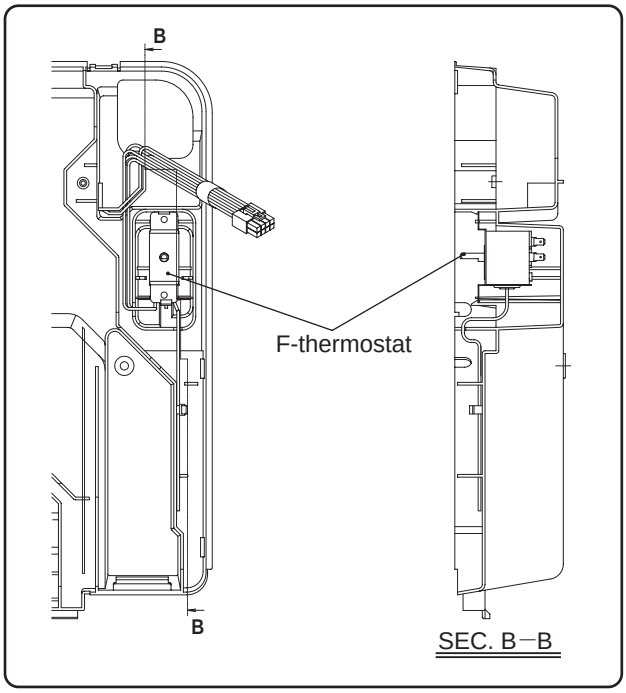


Figure A-14

3. DEFROST HEATER

(1) Taking-out Evaporator

(1)-1. Take out E.v cover ass'y (Fig. A-15).

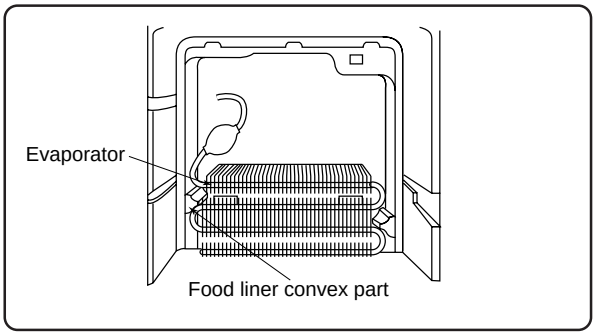


Fig. A-15

(1)-2. As shown in Fig. A-16, pull the upper part of Evaporator toward you, pull it diagonally so that the pipe of Evaporator does not contact the convex part of food liner.

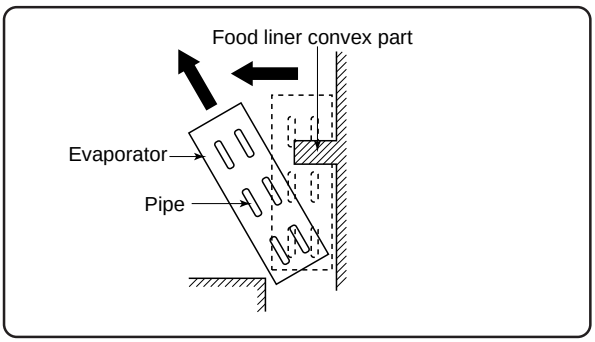


Fig. A-16

(1)-3. As shown in Fig. A-17, bend the removed Evaporator horizontally so that Defrost heater can be replaced easily.

NOTE: When pulling Evaporator and bending the pipes, pay attention so as not to break and deform the pipes. Still, take care not to hurt yourself by fin of Evaporator.

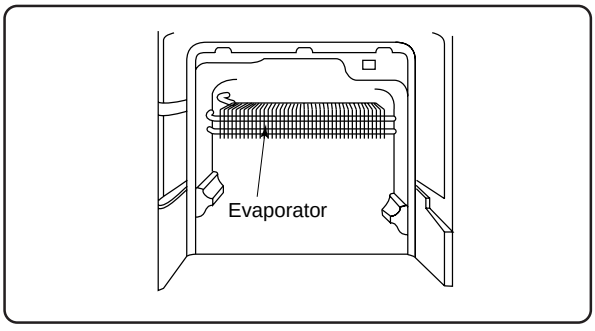


Fig. A-17

(2) Replacement of Def. heater ass'y.

(2)-1 Take Drain support al off from the food liner.

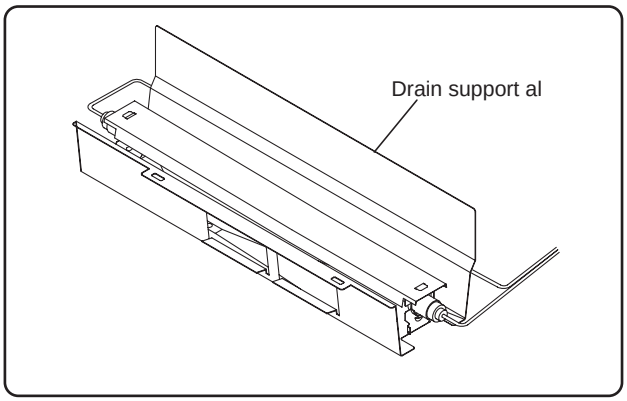


Fig. A-18

(2)-2 Raise the protrusion part of Drain support al. Then remove Heater cover.

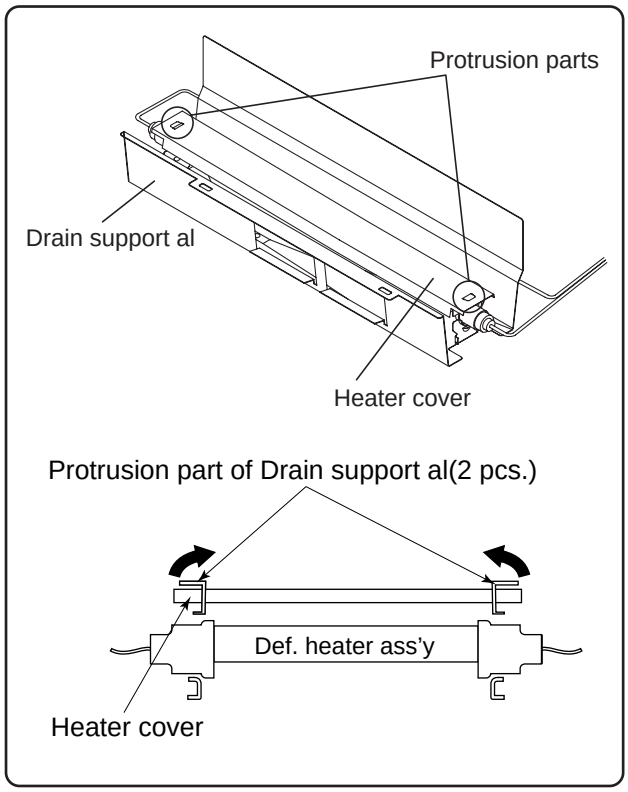


Fig. A-19

(2)-3 Open Def.heater fixed part of Drain support al to the right and left, then remove Def.heater ass'y.

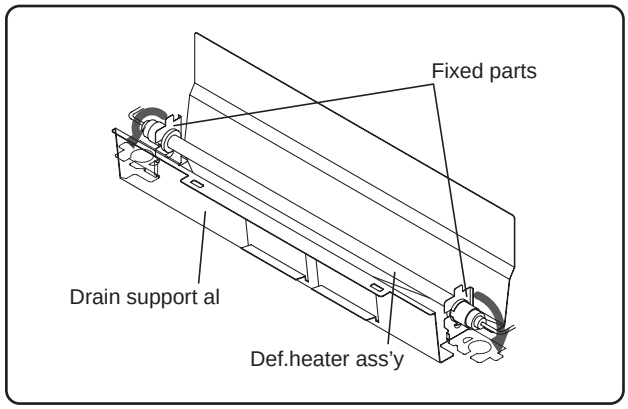


Fig. A-20

(2)-4. Replace Def. heater ass'y with new one.

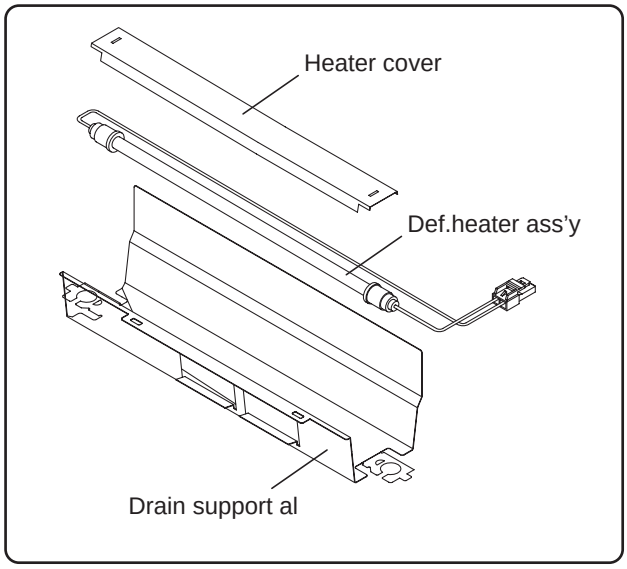


Fig. A-21

(2)-6. Bend (a) and (b) of Drain support al to right angle (90˚) to set Def. heater ass'y. (Fig. A-22)

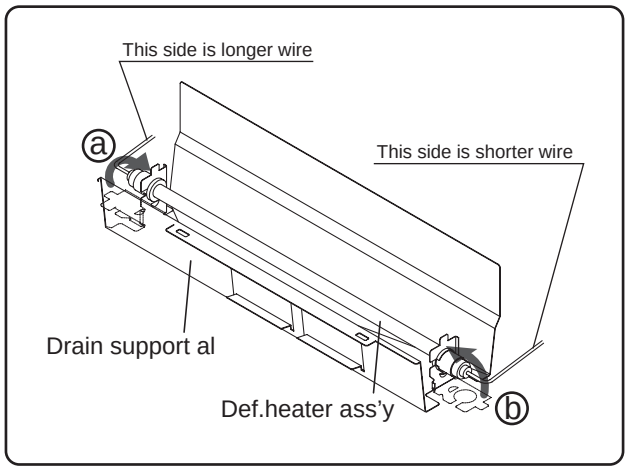


Fig. A-22

(2)-7. Stick the longer wire to the Drain support by aluminum tape (2 pieces), and wind vinyl tape (2 pieces) to lead wires of Def. heater ass'y by aluminum tape as shown in Fig. A-23.

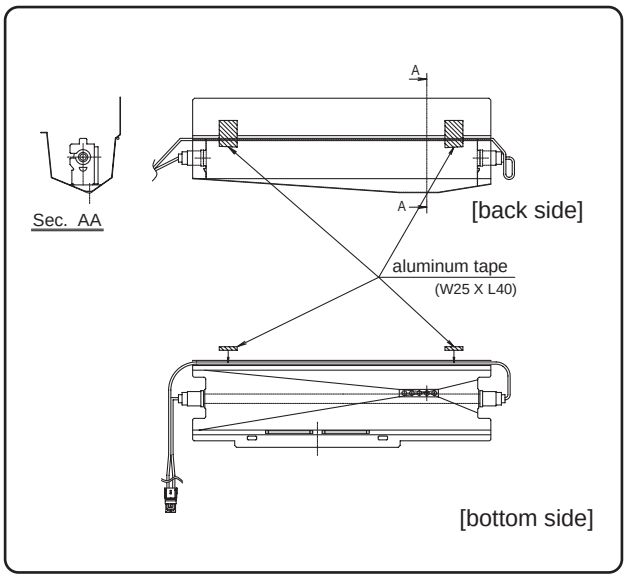


Fig. A-23

(2)-8. Set Heater cover on Drain support, and bend top edge (c) and (d) to outside as shown in Fig. A-24.

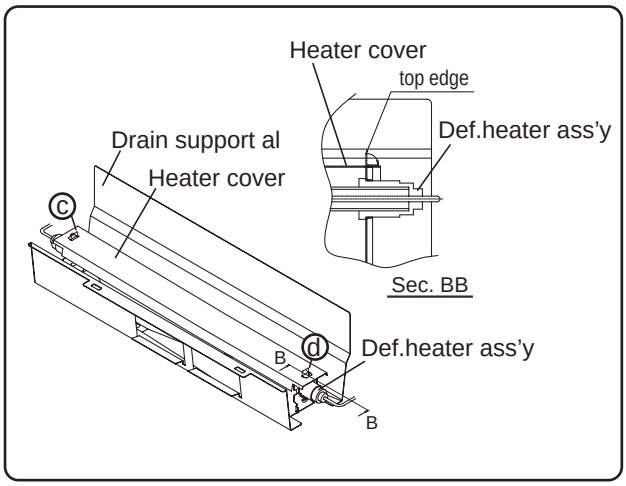


Fig. A-24

(2)-9. Set the assembly above on the food liner by fixing a protrusion.

(3) Installing of Evaporator

(3)-1. Install Evaporator as shown in Fig. A-15 in the reverse order of Fig. A-16.

(3)-2. Correct the deformed fin.

NOTE

1. When installing Evaporator, take care not to deform significantly and break the pipes.
2. Take care not to damage the lead wires and hurt yourself by the fin of Evaporator.

COOLING UNIT

→ Mark: Refrigerant flow
✕ Mark: Brazing portion

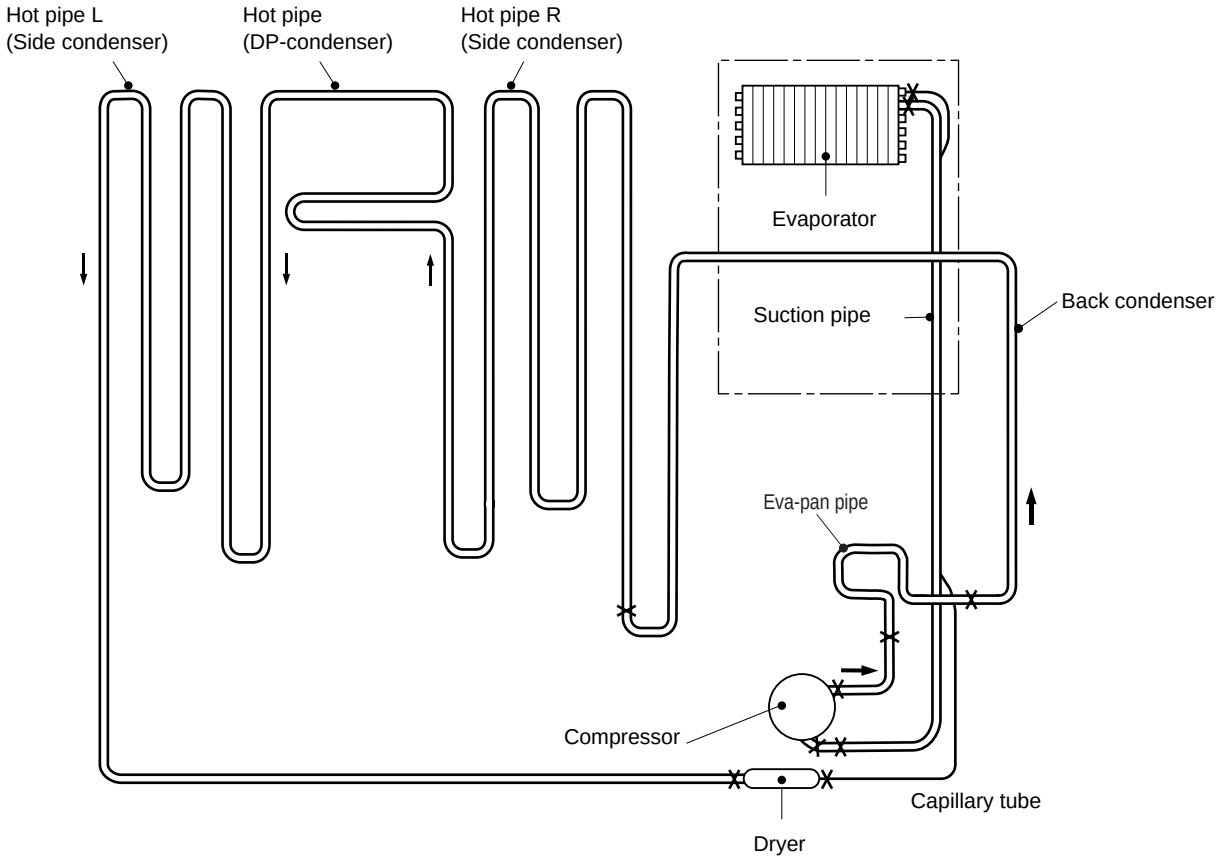


Figure C-1. Cooling unit

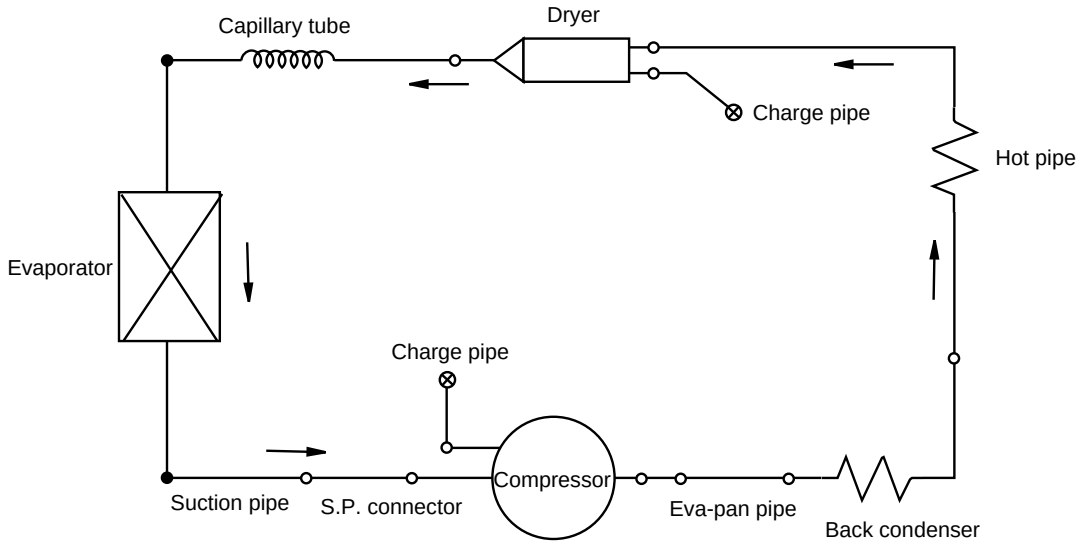


Figure C-2. Location

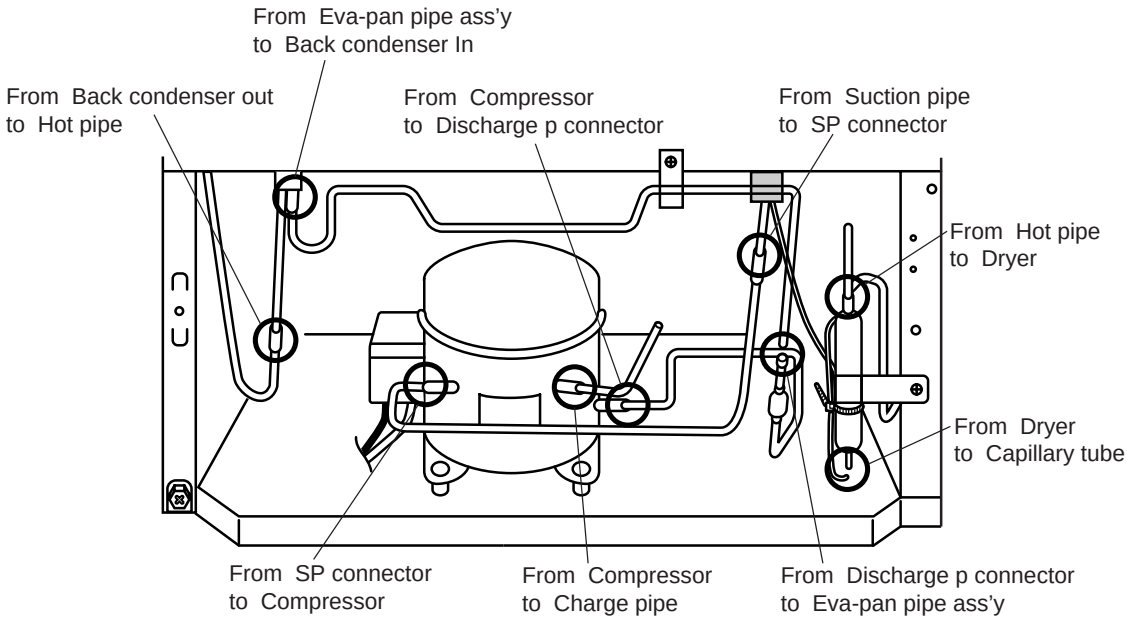


Figure C-3. Location